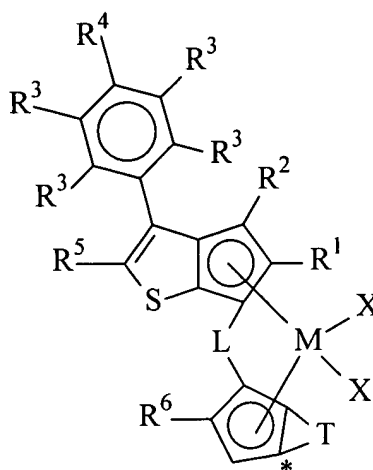


AMENDMENTS TO THE CLAIMS

1. (currently amended) A process for producing a polymer of ethylene containing from 0.1 to 99 % by mol of ~~one or more derived units at least one derived unit~~ of alpha-olefins of formula $\text{CH}_2=\text{CHZ}$, wherein Z is a $\text{C}_2\text{-C}_{20}$ alkyl radical, and optionally from 0 to 5% by mol polyene, comprising contacting, under polymerization conditions, ethylene, ~~one or more alpha-olefins at least one alpha-olefin~~ and optionally said polyene, in the presence of a catalyst system ~~obtainable~~ obtained by contacting:

a) a metallocene compound of formula (I):



(I)

wherein

M is zirconium, hafnium or titanium;

X, equal to or different from each other, is a hydrogen atom, a halogen atom, ~~[[a]]an~~ R, OR, OR'O, OSO_2CF_3 , OCOR, SR, NR_2 or PR_2 group, wherein R is a linear or branched, saturated or unsaturated $\text{C}_1\text{-C}_{20}$ -alkyl, $\text{C}_3\text{-C}_{20}$ -cycloalkyl, $\text{C}_6\text{-C}_{20}$ -aryl, $\text{C}_7\text{-C}_{20}$ -alkylaryl, or $\text{C}_7\text{-C}_{20}$ -arylalkyl radical, optionally containing ~~one or more heteroatoms at least one~~ heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and the R' substituent is a divalent group selected from $\text{C}_1\text{-C}_{40}$ -alkylidene, $\text{C}_6\text{-C}_{40}$ -arylidene, $\text{C}_7\text{-C}_{40}$ -alkylarylidene or $\text{C}_7\text{-C}_{40}$ -arylalkylidene radicals; two X can join to form a $\text{C}_4\text{-C}_{40}$ dienyl ligand;

R^1 is a linear or branched, saturated or unsaturated $\text{C}_1\text{-C}_{20}$ -alkyl, $\text{C}_3\text{-C}_{20}$ -cycloalkyl, $\text{C}_6\text{-C}_{20}$ -aryl, $\text{C}_7\text{-C}_{20}$ -alkylaryl, or $\text{C}_7\text{-C}_{20}$ -arylalkyl radical, optionally containing ~~one or more~~

~~heteroatoms~~ at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

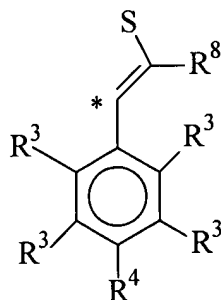
R^2 , R^3 , R^4 and R^5 , equal to or different from each other, are hydrogen atoms, halogen atoms or linear or branched, saturated or unsaturated C_1 - C_{20} -alkyl, C_3 - C_{20} -cycloalkyl, C_6 - C_{20} -aryl, C_7 - C_{20} -alkylaryl, or C_7 - C_{20} -arylalkyl radicals, optionally containing ~~one or more~~

~~heteroatoms~~ at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

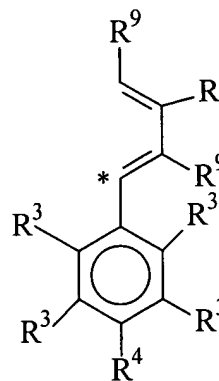
R^6 is a linear or branched, saturated or unsaturated C_1 - C_{20} -alkyl, C_3 - C_{20} -cycloalkyl, C_6 - C_{20} -aryl, C_7 - C_{20} -alkylaryl, or C_7 - C_{20} -arylalkyl radical, optionally containing ~~one or more~~ at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

L is a divalent bridging group selected from C_1 - C_{20} alkylidene, C_3 - C_{20} cycloalkylidene, C_6 - C_{20} arylidene, C_7 - C_{20} alkylarylidene, or C_7 - C_{20} arylalkylidene radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, or a silylidene radical containing up to 5 silicon atoms;

T is a divalent radical of formula (II) or (III):



(II)



(III)

wherein

the atom marked with the symbol * is linked to the atom marked with the same symbol in the compound of formula (I);

~~R^3 and R^4 have the meaning previously described;~~

R^8 is a hydrogen atom or a linear or branched, saturated or unsaturated C_1 - C_{20} -alkyl, C_3 - C_{20} -cycloalkyl, C_6 - C_{20} -aryl, C_7 - C_{20} -alkylaryl, or C_7 - C_{20} -arylalkyl radical, optionally

containing ~~one or more heteroatoms~~ at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements;

R⁹, equal to or different from each other, is a hydrogen atom or a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl, C₃-C₂₀-cycloalkyl, C₆-C₂₀-aryl, C₇-C₂₀-alkylaryl, or C₇-C₂₀-arylalkyl radical, optionally containing ~~one or more heteroatoms~~ at least one heteroatom belonging to groups 13-17 of the Periodic Table of the Elements; and

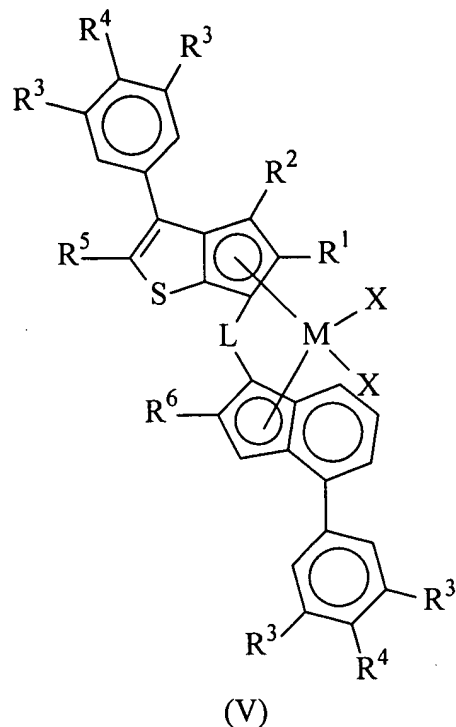
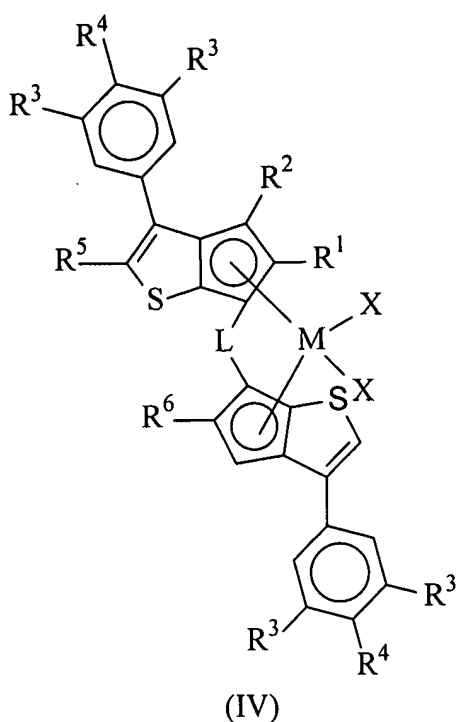
b) an alumoxane or a compound ~~capable of forming~~ that forms an alkyl metallocene cation.

2. (original) The process according to claim 1 wherein the catalyst system further comprises an organo aluminum compound.

3. (currently amended) The process according to claim 1 wherein in the compound of formula (I)[[:]],

X is a halogen atom, ~~[[a]]~~ an R, OR'O or OR group, ~~wherein R and R' are defined as in claim 1;~~ R¹ is a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl radical; R² is a hydrogen atom; R³ is a hydrogen atom or a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl radical optionally containing ~~one or more~~ at least one halogen atom; R⁴ is a hydrogen atom or a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl radical; R⁶ is a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl radical; L is Si(CH₃)₂, SiPh₂, SiPhMe, SiMe(SiMe₃), CH₂, (CH₂)₂, (CH₂)₃, C(CH₃)₂, C(Ph)₂ or C(CH₃)(Ph); R⁸ is hydrogen or a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl radical; and R⁹ is hydrogen or a linear or branched, saturated or unsaturated C₁-C₂₀-alkyl radical.

4. (currently amended) The process according to claim 1 wherein the metallocene compound has formula (IV) or (V):



wherein R^1, R^2, R^5, R^6, L, M and X have the meaning reported in claim 1 or 3;

R^3 is a hydrogen atom or a linear or branched, saturated or unsaturated C_1 - C_{10} -alkyl radical, optionally containing ~~one or more~~ at least one halogen atom; R^4 is a hydrogen atom or a linear or branched, saturated or unsaturated C_1 - C_{10} -alkyl radical.

5. (original) The process according to claim 4 wherein, in the compounds of formula (IV) and (V), R^3 is a hydrogen atom or a group $-C(R^7)_3$, wherein R^7 , equal to or different from each other, is a linear or branched, saturated or unsaturated C_1 - C_8 -alkyl radical; and R^4 is hydrogen or a group $-C(R^7)_3$.
6. (currently amended) The process according to ~~any of claims 1 to 5~~ claim 1 wherein, in the compounds of ~~formulas~~ formula (I), (IV) and (V), R^3 and R^4 are hydrogen atoms.
7. (currently amended) The process according to ~~any of claims 1 to 5~~ claim 1 wherein, in the compounds of ~~formulas~~ formula (I), (IV) and (V), when R^3 is an hydrogen atom, R^4 is ~~is~~ [[or]] a linear or branched, saturated or unsaturated C_1 - C_{10} -alkyl radical, optionally containing ~~one or more~~ at least one halogen atom; or when R^3 is a linear or branched, saturated or unsaturated C_1 - C_{10} -alkyl radical optionally containing ~~one or more~~ at least one halogen atom, R^4 is an hydrogen atom.
8. (currently amended) The process according to ~~any of claims 1 to 7~~ claim 1 wherein the catalyst system is supported on an inert carrier.

9. (currently amended) The process according to claim 8 wherein the ~~catalyst system is supported on~~inert carrier is a polyolefin.
10. (currently amended) The process according to ~~any of claims 1 to 9~~claim 1 wherein the process is carried out in gas phase.
11. (currently amended) The process according to ~~any of claims 1 to 11~~claim 1 wherein the alpha-olefin is 1-pentene, 1-hexene or 1-octene.
12. (new) The process according to claim 4 wherein, in the compounds of formulas (IV) and (V), R^3 and R^4 are hydrogen atoms.
13. (new) The process according to claim 4 wherein, in the compounds of formulas (IV) and (V), when R^3 is an hydrogen atom, R^4 is a linear or branched, saturated or unsaturated C_1 - C_{10} -alkyl radical, optionally containing at least one halogen atom; or when R^3 is a linear or branched, saturated or unsaturated C_1 - C_{10} -alkyl radical optionally containing at least one halogen atom, R^4 is an hydrogen atom.